

**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AIR QUALITY CONSTRUCTION PERMIT**

Permit No. 171CP01

Final – December 2, 2002

**Phillips Alaska Inc.
Kuparuk Central Production Facility #3
Permit Revisions Pertaining to Emission Limits**

The Department of Environmental Conservation, under the authority of AS 46.03, AS 46.14, AS 46.40, 6 AAC 50, 18 AAC 15, and 18 AAC 50.315, issues an Air Quality Construction Permit to:

Owner(s):

Phillips Alaska Inc.
700 G Street
P.O. Box 100360
Anchorage, AK 99510-0360

Exxon Company, USA
800 Bell Street, Room 2917
P.O. Box 2180
Houston, TX 77252-2180

BP Exploration (Alaska) Inc
900 E. Benson Blvd.
P.O. Box 196612
Anchorage, AK 99519-6612

Union Oil Company of California
909 West 9th Ave
P.O. Box 190247
Anchorage, AK 99519-0247

Chevron USA Production Co.
P.O. Box 1635
Houston, TX 77251

Mobil Oil Corporation
12450 Greenspoint Drive
Houston, TX 77060-1991

The department authorizes the following revisions to Operating Permit No. 9373-AA006:

- the rated capacity for the equipment listed in Exhibit A;
- the short-term and annual emission limits for equipment listed in Exhibit B; and
- the minor modifications for monitoring listed in Exhibit C;

in accordance with the terms and conditions of this permit, and as described in the original permit application. This permit also authorizes the permittee to operate the proposed equipment as provided by AS 46.14.120.

John F. Kuterbach, Manager
Air Permits Program

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PERMIT TERMS AND CONDITIONS

A. 18 AAC 50.340(i): Permit Continuity

1. This permit rescinds and replaces Air Quality Control Permit to Operate No. 9373-AA006 as amended through August 2, 1996.
2. Except as provided herein the requirements contained in Air Quality Permit to Operate No. 9373-AA006, as amended through August 2, 1996, remain in effect until superseded by an Operating Permit issued under AS 46.14.170.
3. Exhibit A in this permit is a revision to Exhibit A, Source Inventory, of Air Quality Control Permit to Operate No. 9373-AA006, to incorporate modifications.
4. Exhibit B in this permit is a revision to Exhibit B, Air Contaminant Emission Limits, Standards, Fuel Specifications, and Operating Limits, of Air Quality Control Permit to Operate No. 9373-AA006, to incorporate modifications.
5. Exhibit C in this permit is a revision to Exhibit C, Process Monitoring Requirements, of Air Quality Control Permit to Operate No. 9373-AA006, to incorporate modifications.

B. Record Keeping, Reporting, and Testing Conditions

6. The permittee shall keep records of required monitoring data and support information for at least five years after the date of the collection; support information includes calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of reports required by this permit. The permittee shall keep monitoring and compliance records as required by the Clean Air Act and applicable federal air quality regulations.

C. 18 AAC 50.055: Industrial Processes and Fuel-Burning Equipment

7. The permittee shall comply with 18 AAC 50.055(a)(1) for visible emissions, 18 AAC 50.055(b)(1) for particulate matter emissions, and 18 AAC 50.055(c) for sulfur compound emissions as follows:

7.1 Visible emissions, excluding condensed water vapor, from an industrial process or fuel-burning equipment may not reduce visibility through the exhaust effluent by either

- a. more than 20% for more than three minutes in any one hour¹, or
- b. more than 20% averaged over any six consecutive minutes².

¹ For purposes of this permit, the “more than three minutes in any one hour” criterion in this condition will no longer be effective when the Air Quality Control (18 AAC 50) regulation package effective 5/3/02 is adopted by the U.S. EPA.

² The six-minute average standard is enforceable only by the state until 18 AAC 50.055(a)(1), dated May 3, 2002, is approved by EPA into the SIP at which time this standard becomes federally enforceable.

- 7.2 Particulate matter emitted from an industrial process or fuel-burning equipment may not exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours,;
- 7.3 Sulfur-compound emissions, expressed as sulfur dioxide, from an industrial process or from fuel-burning equipment may not exceed 500 ppm averaged over a period of three hours.

EXHIBIT A

Source Inventory

Permittee is authorized under this permit to construct the following stationary sources. The design rating and capacity as set out in this exhibit is only for the purpose of aiding in the field identification of the equipment.

Equipment Tag No.	Rating in AQCP to Operate No. 9373-AA006	Revised Rating	Explanation
Gas-Fired Turbines			
G-EF03	33,900 hp	35,400 hp (26,420 kW) ISO	New information: Correct ISO hp rating. Permit No. 9373-AA006 does not reflect revised rating following 1996 upgrade.
C-EF01-A C-EF01-B G-EF01-A P-EF52-A P-EF01-B	15,140 hp 15,140 hp 4,900 hp 4,900 hp 4,900 hp	No change	None needed
Gas-Fired Heaters			
H-EF03 H-EF04	38.8 MMBtu/hr 5.3 MMBtu/hr	48.5 MMBtu/hr 5.6 MMBtu/hr	New information. Correct maximum design rating.
Diesel Fired Equipment			
P-EF24B P-EF53	430 hp 270 hp	No change	None needed
Flares			
H-EF01B H-EF02B H-EF05 H-EF06	0.6 MMscf/day (pilot, purge, assist) combined total for all flares	No change	None needed
Drill Site Heaters			
H-3A01 H-3B01 H-3C01 H-K06-01 H-K02-01 H-3I01 H-3J01 H-3K01 H-K01-01 H-3N01 H-K03-01 H-3Q01 H-K07-01	Not in permit 13.1 MMBtu/hr 13.1 MMBtu/hr Not in permit Not in permit Not in permit Not in permit Not in permit Not in permit Not in permit Not in permit Not in permit 13.3 MMBtu/hr	19.6 MMBtu/hr 19.6 MMBtu/hr 19.6 MMBtu/hr 19.9 MMBtu/hr 19.9 MMBtu/hr 19.6 MMBtu/hr 19.6 MMBtu/hr 19.6 MMBtu/hr 19.9 MMBtu/hr 19.6 MMBtu/hr 19.9 MMBtu/hr 19.6 MMBtu/hr 19.9 MMBtu/hr	New information. Correct maximum design rating.
Fixed Roof Storage Tanks (>10,000 gallon capacity)			
T-EF03 T-EF20 T-EF62	1,000 bbls 500 bbls 293 bbls	No change	None needed

Equipment Tag No.	Rating in AQCP to Operate No. 9373- AA006	Revised Rating	Explanation
KP-4122	424 bbls		
T-3A01	580 bbls		
T-3B01	813 bbls		
T-3C01	813 bbls		
T-3G01	870 bbls		
T-3H01	870 bbls		
T-3J01	580 bbls		
T-3K01	675 bbls		
T-XX02	630 bbls		
T-3N01	675 bbls		
T-3O01	630 bbls		

EXHIBIT B

Air Contaminant Emission Limits, Standards, Fuel Specifications, and Operating Limits

Permittee shall operate each source in compliance with the applicable emission standards specified by 18 AAC 50.040-060, by an applicable federal New Source Performance Standard or National Emission Standard for Hazardous Air Pollutants, by limits established as the result of a BACT or LAER determination, or the requested emission limits, standards, fuel specifications, and operating limits listed below, whichever is most stringent. All emission limitations are annual average, unless otherwise noted.

Note: In the tables below all turbine group emission limits for NO_x refer to full load, ISO conditions. All other emission limits refer to full load, standard conditions.

Sources (Turbines): GE Frame 3 Turbines C-EF01-A and C-EF01-B, and EGT (Ruston) TB5000 Turbines P-EF52-A, P-EF52-B, and G-EF01-A

Pollutant	Source	Limit in AQCP to Operate No. 9373-AA006	Revised Limits	Explanation
NO _x	GE Frame 3 EGT (Ruston) TB5000	145 ppmv 95 ppmv @16.1% O ₂	150 ppmv @ 15% O ₂ 117 ppmv @ 15% O ₂ 1,198 tpy (Total for GE Frame 3 and EGT (Ruston) TB5000 units)	Revised TB5000 limit based on ADEC BACT of 6/10/86. Revised GE Frame 3 limit based on ADEC BACT of 5/11/93. Ton per year limit established by EPA PSD BACT and 10/7/97 permit revision.
SO ₂	GE Frame 3 and EGT (Ruston) TB5000 units	200 ppm H ₂ S in fuel, each unit	200 ppm H ₂ S in fuel, each unit 65 tpy (Total for GE Frame 3 and EGT (Ruston) TB5000 units)	EPA PSD BACT and 10/7/97 permit revision.
CO	GE Frame 3 and EGT (Ruston) TB5000 units	109 lb/MMscf, each unit	0.17 lb/MMBtu, each unit 362 tpy (Total for GE Frame 3 and EGT (Ruston) TB5000 units)	EPA PSD BACT and 10/7/97 permit revision and is new information
PM	GE Frame 3 and EGT (Ruston) TB5000 units	14.0 lb/MMscf, each unit	No limit each unit. 30 tpy (Total for GE Frame 3 and EGT (Ruston) TB5000 units)	EPA PSD BACT and 10/7/97 permit revision. EPA did not establish a lb/MMscf limit.
Opacity	GE Frame 3 and EGT (Ruston) TB5000 units	20%, 3 min/hr, each unit	20%, 3 min/hr 10%, consecutive 6 minute average	EPA PSD BACT and 10/7/97 permit revision.
VOC	GE Frame 3 and EGT (Ruston) TB5000 units	2.3 lb/MMscf, each unit	No limit each unit. 4.5 tpy (Total for GE Frame 3 and EGT	EPA PSD BACT and 10/7/97 permit revision. EPA did not establish a lb/MMscf limit.

Pollutant	Source	Limit in AQCP to Operate No. 9373-AA006	Revised Limits	Explanation
			(Ruston) TB5000 units)	

Source: GE Frame 5 Turbine G-EF03

Pollutant	Limit in AQCP to Operate No. 9373-AA006	Revised Limits	Explanation
NO _x	147 ppmv	147 ppmv @ 15% O ₂ 970 tpy	ADEC BACT of 6/10/86 established ton per year limit. Revised limit is based on new information and calculation with conservative ambient temperature.
SO ₂	200 ppm H ₂ S in fuel	200 ppm H ₂ S in fuel 51 tpy	ADEC BACT of 6/10/86 established ton per year limit based on 25 ppm. Revised limit is based on new information and calculation with 200 ppm.
CO	109 lb/MMscf	0.17 lb/MMBtu 278 tpy	New information. Current limit is based on out-dated AP-42 emission factor. Revised limit is from Table 3.2-1 of current AP-42. ADEC BACT of 6/10/86 established ton per year limit. Revised limit is based on calculation with 0.17 lb/MMBtu.
PM	14.0 lb/MMscf	None Applicable 23 tpy	ADEC BACT of 6/10/86 established ton per year limit. Revised limit is based on new information and calculation with conservative ambient temperature.
Opacity	20 %, 3 min/hr	20 %, 3 min/hr 10%, consecutive 6 minute average	ADEC BACT of 6/10/86.
VOC	2.3 lb/MMscf	None Applicable 3.3 tpy	ADEC BACT of 6/10/86 established ton per year limit. Revised limit is based on new information and calculation with conservative ambient temperature.

Source: Broach Heater H-EF03

Pollutant	Limit in AQCP to Operate No. 9373-AA006	Revised Limit	Explanation
NO _x	0.08 lb/MMBtu	None Applicable	Standby unit. No limit in 6/10/86 ADEC permit.
CO	0.018 lb/MMBtu	None Applicable	Standby unit. No limit in 6/10/86 ADEC permit.
PM	2.5 lb/MMscf	None Applicable	Standby unit. No limit in 6/10/86 ADEC permit.
VOC	2.3 lb/MMscf	None Applicable	Standby unit. No limit in 6/10/86 ADEC permit.

Source: Howe-Baker Heater H-EF04

Pollutant	Limit in AQCP to Operate No. 9373-AA006	Revised Limit	Explanation
NO _x	0.08 lb/MMBtu	0.1 lb/MMBtu	ADEC BACT from 6/10/86 final air quality technical analysis. ADEC 6/10/86 permit had no limits for this heater.
CO	0.018 lb/MMBtu	None Applicable	No limits established in ADEC 6/10/86 permit or technical analysis.
PM	2.5 lb/MMscf	None Applicable	No limits established in ADEC 6/10/86 permit or technical analysis.
VOC	2.3 lb/MMscf	None Applicable	No limits established in ADEC 6/10/86 permit or technical analysis.

Sources: Drill Site Heaters NATCO/BS&B, 13 Total

Pollutant	Limit in AQCP to Operate No. 9373-AA006	Revised Limits	Explanation
NO _x	None	0.1 lb/MMBtu, each unit 124 tpy (Total for 13 units)	EPA PSD BACT and 10/7/97 permit revision.
SO ₂	200 ppm H ₂ S in fuel	200 ppm H ₂ S in fuel, each unit 34 tpy (Total for 13 units)	EPA PSD BACT and 10/7/97 permit revision.
CO	0.018 lb/MMBtu	0.035 lb/MMBtu, each unit 43 tpy (Total for 13 units)	EPA PSD BACT and 10/7/97 permit revision and new information.
PM	2.5 lb/MMscf	None Applicable 14 tpy (Total for 13 units)	EPA PSD BACT and 10/7/97 permit revision. EPA did not establish a lb/MMscf limit.
Opacity	20 %, 3 min/hr	20 %, 3 min/hr 10%, consecutive 6 minute average	6/10/86 ADEC BACT
VOC	2.3 lb/MMscf	None Applicable	EPA did not establish VOC BACT limits for heaters.

Sources: Flare System

Pollutant	Limit in AQCP to Operate No. 9373-AA006	Revised Limit	Explanation
VOC	2.3 lb/MMscf	None Applicable	No EPA or ADEC VOC BACT or other limit applies.

EXHIBIT C

Process Monitoring Requirements

Permittee shall install, calibrate, operate, and maintain in good working order air contaminant emissions and process monitoring equipment on the sources described below.

MONITORING AND REPORTING REQUIREMENTS

Gas Turbines and Heaters	A fuel gas meter which indicates the volume of natural gas consumed in each group must be installed or other means of estimating fuel consumption must be provided.
Fuel Gas	Determine the sulfur (H ₂ S) content of the natural gas burned as fuel once each month. Acceptable methods are ASTM D-4810-88, ASTM 4913-89, Gas Producers Assn. (GPA) method 2377-86, or an alternative analytical method approved by the department.